

16. City of Scottsdale

The City of Scottsdale is located northwest of Phoenix in Maricopa County. Scottsdale has grown from a tiny farming community of 2,000 persons occupying one square mile in 1951 to a vibrant community of more than 180,000 persons spreading over 185 square miles. The City of Scottsdale is characterized by a hospitality industry serving both the business and leisure sector. Scottsdale's quality of life includes well-planned living, working and shopping areas. The city is known for its architectural and landscape design excellence and rich cultural, business and recreational environments. The City of Scottsdale MPA is located north of McDowell Road, west of 136th Street, east of Scottsdale Road, and south of the Tonto National Forest boundary.

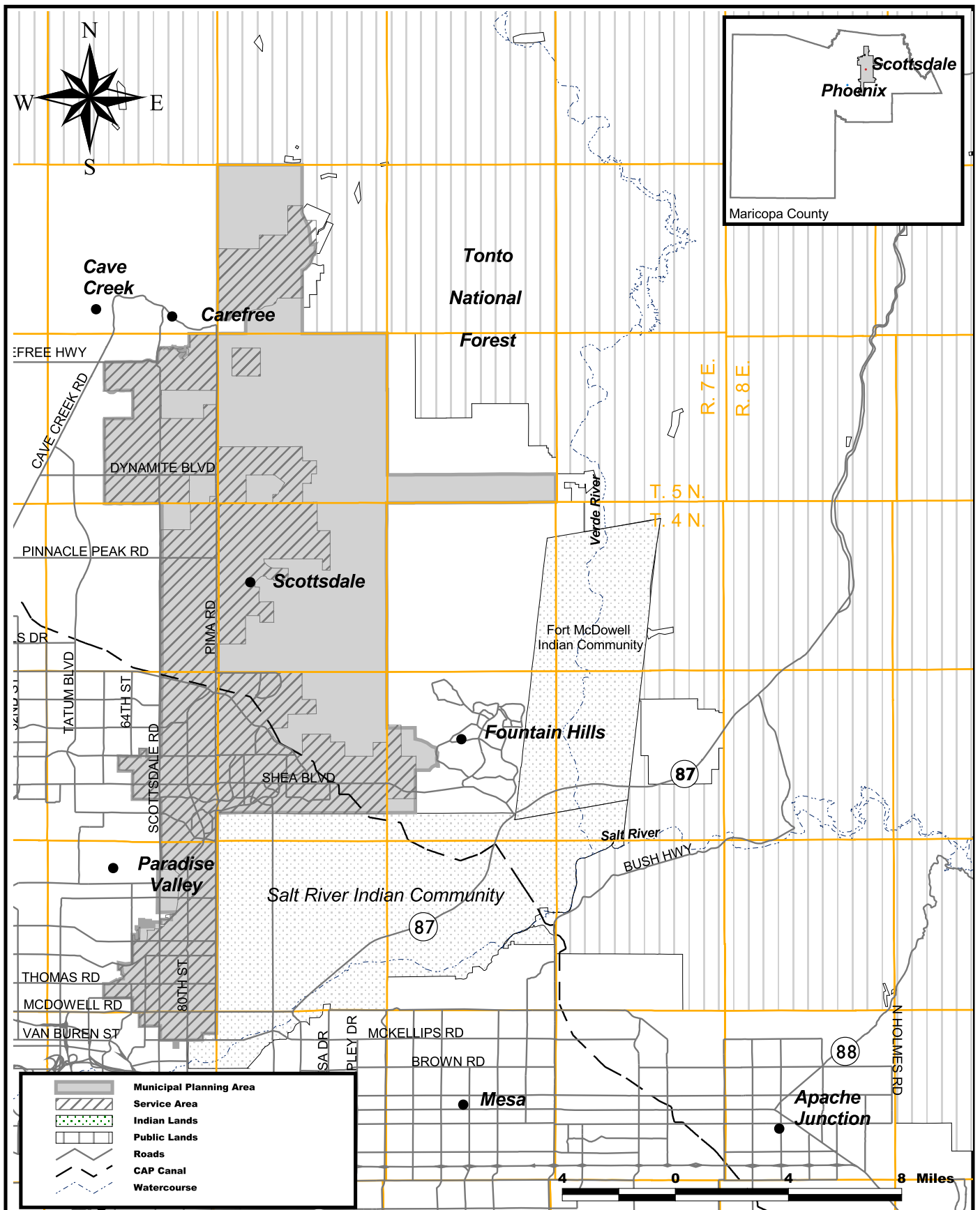
According to the ADWR Annual Water Withdrawal and Use Report, in the City of Scottsdale in 1998, 34,545 af of groundwater were pumped and delivered. Also, 7,457 af of water were received from other irrigation districts and 29258 af were received from CAWCD. Of the total 712,260 af of water produced and delivered, 154 af were delivered to other users, leaving 71,106 af of water to be used by the City of Scottsdale.

A. Plans to Take and Use CAP Water

The City of Scottsdale currently has a contract for 49,029 af of CAP water. This allocation includes 19,702 af received under the 1983 allocation and 29,327 af of transferred water. The transferred water was from North Valley Water (393 af), Ironwood Water (393 af), Carefree Ranch Water Company (954 af), Payson (4,995 af), Desert Ranch Water Company (139 af), Yavapai Prescott (500 af), City of Prescott (7,127), Rio Rico Citizens Utility (2,683 af), ASLD (530 af), Mayer Domestic Water Improvement District (332 af), Nogales (3,949 af), Berneil Water Company (200 af), ASLD (3,900 af), Cottonwood (1,789 af) and Camp Verde (1,443 af). Under the Settlement Alternative, the City of Scottsdale would receive 2,981 af of CAP water. That CAP water would be delivered for a 50-year contract period (i.e., from 2001-2051). The CAP water would be used to supplement both current and projected water supply demands over the next 50 years and would help reduce the continuing dependence on pumping groundwater from an overdrafted groundwater system. Table L-M&I-93 outlines the proposed CAP allocation by alternative.

Table L-M&I-93 CAP Allocation Draft EIS City of Scottsdale – Proposed CAP Allocation		
Alternative	Allocation (in afa)	Priority
Settlement Alternative	2,981	M&I
No Action	0	--
Non-Settlement Alternative 1	2,981	M&I
Non-Settlement Alternative 2	0	--
Non-Settlement Alternative 3A	0	--
Non-Settlement Alternative 3B	3,261	NIA
Existing CAP Allocation	49,029	--

Figure L-M&I-47 shows the service area and MPA for the City of Scottsdale. The service area covers approximately 70,337 acres and the MPA covers approximately 123,639 acres. The City



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CAP Allocation Draft EIS **General Location Map** **City of Scottsdale**

Figure #L-M&I-47

of Scottsdale currently uses the CAP Water Treatment Plant (located at Union Hills and Pima). The capacity of the plant is 56,000 afa. The City of Scottsdale is entitled to 2.16 percent of GRUSP's recharge capacity and holds a water storage permit with SRP for 20,000 afa (Mansfield 2000).

B. Population Projection

In 1985, the population in the City of Scottsdale was 34,365. The estimated 2001 population is 204, 892, and the estimated 2051 population is 374,482.

C. Water Demand and Supply Quantities

As previously shown in Appendix C–M&I Sector Water Uses, it is estimated that water demand in the City of Scottsdale would increase from 56,903 af in year 2001 to 104,135 af in year 2051. The projected water uses both by water source and alternatives are provided below in Table L-M&I-94. Based on anticipated demands, CAP water, which would be allocated under the Settlement Alternative, would provide five percent and three percent of the current estimated water supply required for the City of Scottsdale for the years 2001 and 2051, respectively.

<p style="text-align: center;">Table L-M&I-94 CAP Allocation Draft EIS City of Scottsdale– Projected Water Use</p>												
Alternative	Annual CAP Deliveries		Groundwater		Effluent		CAGR D		Other Surface Water		Total Demand	
	2001	2051	2001	2051	2001	2051	2001	2051	2001	2051	2001	2051
Settlement Alternative	25,171	66,847	12,157	12,157	0	1,000	0	0	19,574	24,131	56,903	104,135
No Action	25,171	61,315	12,157	12,157	0	6,532	0	0	19,574	24,131	56,903	104,135
Non-Settlement Alternative 1	25,171	65,599	12,157	12,157	0	2,247	0	0	19,574	24,131	56,903	104,135
Non-Settlement Alternative 2	25,171	61,315	12,157	12,157	0	6,532	0	0	19,574	24,131	56,903	104,135
Non-Settlement Alternative 3A	25,171	61,315	12,157	12,157	0	6,532	0	0	19,574	24,131	56,903	104,135
Non-Settlement Alternative 3B	25,171	65,599	12,157	12,157	0	2,247	0	0	19,574	24,131	56,903	104,135
Note: A more detailed breakdown of supplies may be found in Appendix C.												

It is estimated that the demand for water at the end of the CAP contract period would be approximately 104,135 af. For all alternatives, there is estimated to be no unmet demand with or without the additional CAP allocation.

D. Environmental Effects

The following sections include a general description of existing conditions relating to land use, water resources and socioeconomics for each entity. The following summaries also include a description of the existing conditions and brief description of the impacts to biological and cultural resources that would result from construction of CAP delivery facilities and conversion of desert and agricultural lands to urban uses.

1. Land Use

According to data from MAG, the land use designations in the City of Scottsdale MPA in 1995 consisted of approximately 62 acres of agriculture, 54,950 acres of developed land, 561 acres of rural land, 67,525 acres of vacant land and 541 acres of water, including lakes, rivers and canals. As described in the introduction to this appendix, the 1995 MAG categories were redefined into three new categories (i.e. agriculture, desert and urban). These 1995 data were also updated and adjusted based on reviews of the 1998 aerial photography and the field surveys that were completed to assess biological resources for this EIS. Table L-M&I-95 provides the projected acres of land within the City of Scottsdale MPA which are agriculture, desert or urban and the number of acres expected to change from the existing category for the years 2001 and 2051.

Table L-M&I-95 CAP Allocation Draft EIS City of Scottsdale – Projected Land Use Changes Within the MPA (in acres)							
Alternative	Year	Agriculture	Agriculture Urbanized	Desert	Desert Urbanized	Urban	Changes in Urban Acreage
Settlement Alternative	2001	0	--	67,144	--	56,495	--
	2051	0	0	49,409	17,735	74,230	17,735
No Action	2001	0	--	67,144	--	56,495	--
	2051	0	0	49,409	17,735	74,230	17,735
Non-Settlement Alternative 1	2001	0	--	67,144	--	56,495	--
	2051	0	0	49,409	17,735	74,230	17,735
Non-Settlement Alternative 2	2001	0	--	67,144	--	56,495	--
	2051	0	0	49,409	17,735	74,230	17,735
Non-Settlement Alternative 3A	2001	0	--	67,144	--	56,495	--
	2051	0	0	49,409	17,735	74,230	17,735
Non-Settlement Alternative 3B	2001	0	--	67,144	--	56,495	--
	2051	0	0	49,409	17,735	74,230	17,735

2. Archaeological Resources

In general, the distribution of sites across the City of Scottsdale MPA reflects the extent of survey coverage; however, much remains unexamined or has been inadequately covered for purposes of Section 106 compliance (e.g., RECON 1987). Areas of high and moderate cultural resource sensitivity in the northern portion of the MPA consist primarily of prehistoric agricultural and habitation sites and historic mining sites such as are common along Cave Creek and surrounding areas. The central portion of the MPA is characterized by numerous sites ranging from small undifferentiated lithic scatters of possible Archaic affiliation to extensive Hohokam villages (e.g., Pinnacle Peak Village/the Herberger Site) associated with trash mounds, agricultural features, trails, and petroglyph loci. Rock shelters, quarries, special-use areas, bedrock mortars, and other isolated features also have been identified (e.g., Atwell 1992). In the southern portion of the MPA, from Taliesin West (AZ U:5:15(ASM)) to Gilbert Road are many prehistoric artifact scatters, some associated with surface features (e.g., Crownover 1996; Schroeder 1992). Protohistoric Pima sites, including camps and agricultural fields, are known to be present near the McDowell Mountains area; surface remains might be expected. Historic

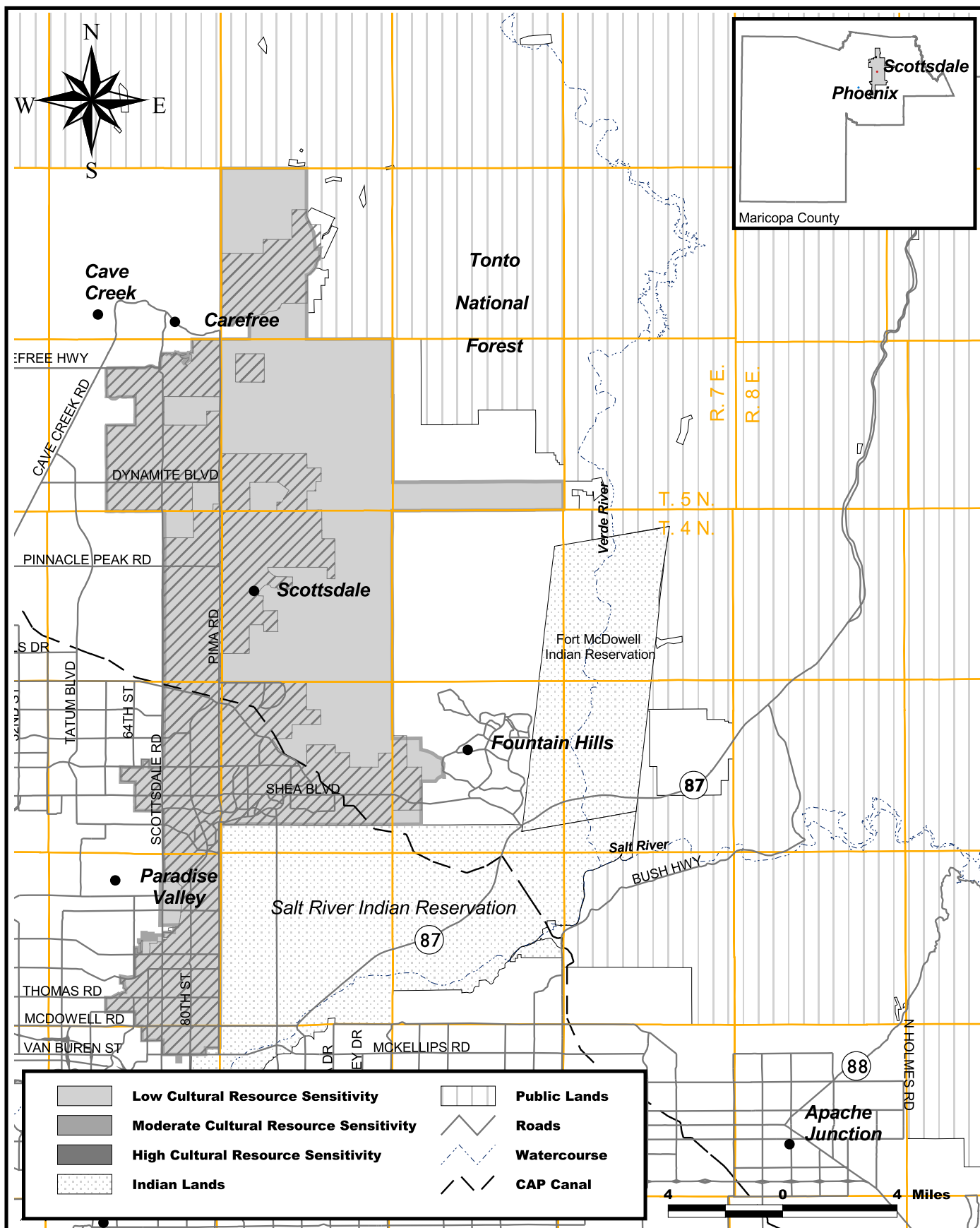
homesteads, wagon roads, corrals, camps, and related trash dumps also are present in this area (e.g., Crownover 1996; Schroeder 1992). Historic resources in urban areas include commercial and residential buildings, and transportation-related sites such as road and railroad features. The City of Scottsdale has a Historic Preservation Committee and has drafted its own Archaeological Resources Ordinance.

Cultural resource sensitivity areas in the City of Scottsdale MPA are shown on Figure L-M&I-48. Based on the limited data used to generate the cultural sensitivity designations, the potential for cultural resource impacts in the City of Scottsdale MPA is moderate to high. Mitigation of cultural resource impacts due to urban expansion would be determined by local jurisdictions and development of applicable permit requirements (such as the CWA Section 404 permit). Impacts on cultural resources due to future land use changes would be identical for each of the five alternatives. Mitigation for such impacts would be dependent on the requirements of the local jurisdiction. Once the plans for taking delivery of CAP water are finalized, Reclamation would carry out additional cultural resource compliance as appropriate, prior to water delivery.

3. Biological Resources

Existing Habitats

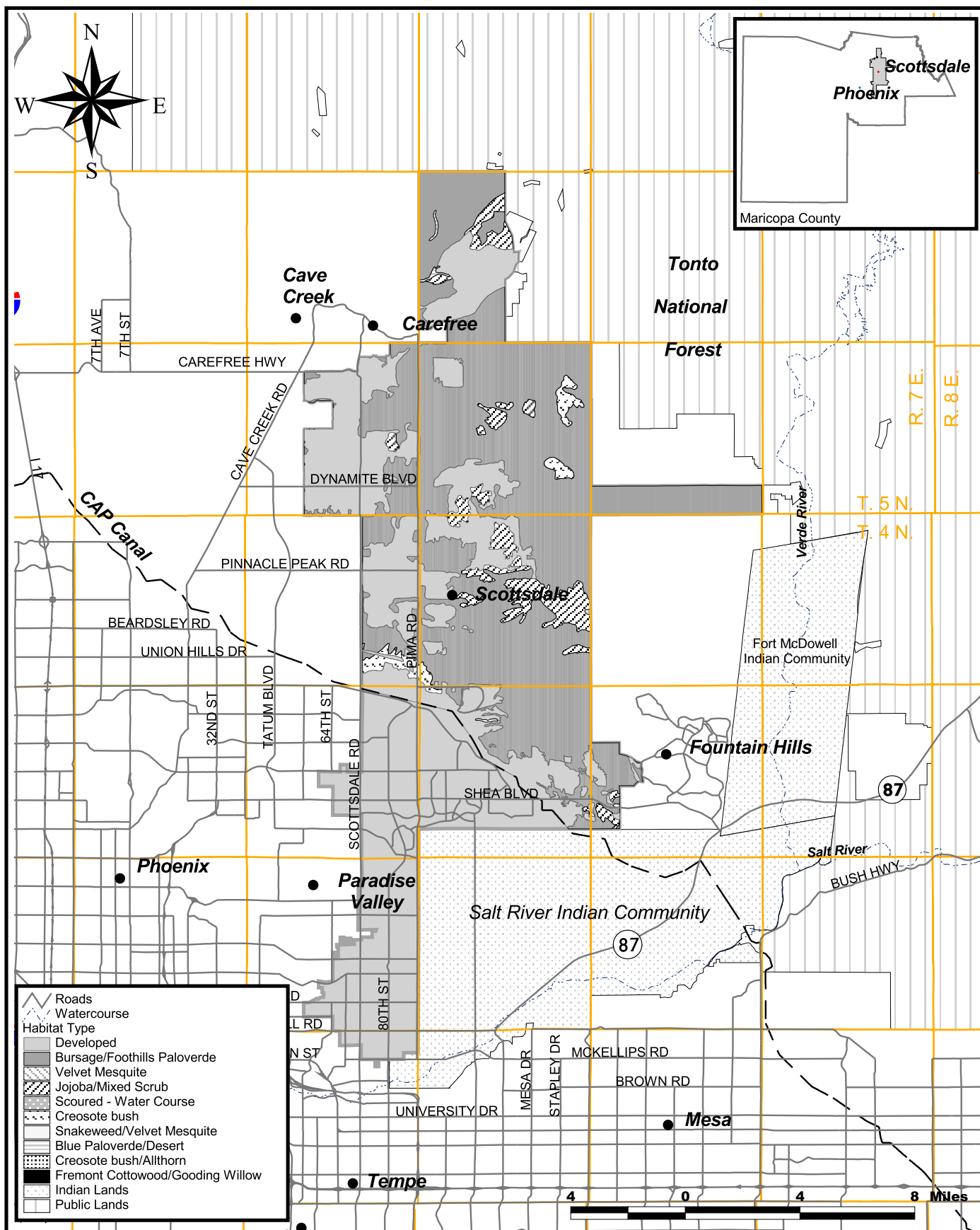
In the northwest portion of the City of Scottsdale MPA at higher elevations (to approximately 4,900 feet), occurs an approximation of the Jojoba/Mixed Scrub Association, which is dominated by turpentine-bush and co-dominated by foothills paloverde, catclaw acacia, staghorn cholla, fairy-duster, and hedgehog cactus. This association also occurs in the area of the McDowell Mountains. Bursage-Foothill Paloverde Association dominates most of the undeveloped portions of the Scottsdale MPA below 3,500 feet in elevation. Recent fires have affected much of this habitat. In unaffected areas, saguaro and other trees are fairly dense, while in the burned areas, they are sparse. In general, co-dominants of the Bursage-Foothill Paloverde Association include creosote-bush and staghorn cholla. Other common trees include velvet mesquite, desert ironwood, blue paloverde, and saguaro. In the lower, silty plains in the southwestern portion of the planning area, Creosote-bush Scrub Association is dominant where the cover is very low and trees are widely spaced. Blue Paloverde/Desert Ironwood Association occurs along major washes where conspicuous species include burrobrush, desert-broom, blue-paloverde, desert ironwood, and desert-willow. The habitat zones are shown on Figure L-M&I-49. Table L-M&I-96 provides the habitat acreages for the habitat zones described above.



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CAP Allocation Draft EIS **Cultural Resources** **City of Scottsdale**

Figure #L-M&I-48



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CAP Allocation Draft EIS **Habitat Zones** **City of Scottsdale**

Figure No. L-M&I-49

Table L-M&I-96 CAP Allocation Draft EIS City of Scottsdale- Habitat Acreages	
Vegetation Name	Acres
Developed	56,495
Bursage/Foothills Paloverde	59,909
Jojoba/Mixed Scrub	5,450
Creosote Bush	1,622
Blue Paloverde/Desert	163
Total	123,639

Impacts to Biological Resources

Under the No Action Alternative, urban growth within the City of Scottsdale MPA over the 50-year study period would result in loss of an estimated 17,735 acres of Sonoran Desert scrub and associated wildlife resources. There may also be indirect impacts on wildlife occurring in the adjacent undeveloped habitat. Under the action alternatives, there is a difference in impacts from the No Action baseline. With regard to construction of CAP delivery facilities, Reclamation would carry out additional environmental review once plans are developed.

Potential T&E Species and Acres of Potential T&E Species Habitat

Because the allocation of CAP water has no effect on urban growth, there would be no effect on T&E species from the CAP allocation. The City of Scottsdale would be responsible for complying with the relevant provisions of the ESA as it permits and approves future urban growth. The City of Scottsdale MPA is located within Maricopa County for which there are 14 T&E species listed by the USFWS. Potentially suitable habitat only exists for cactus ferruginous pygmy-owl and Arizona agave. Approximately 60,072 acres of potentially suitable habitat for the cactus ferruginous pygmy-owl were identified within the Scottsdale MPA. Also, approximately 4,489 acres above 3,000 feet of potentially suitable habitat for Arizona agave were identified.

4. Water Resources

Demands in the City of Scottsdale have historically been met with water provided by SRP (available in the southern portion of the city) and groundwater pumped from the underlying sedimentary rocks. A groundwater depression has developed under the southern part of the City of Scottsdale in response to this pumping, and there has been subsidence associated with these lower groundwater levels. The concentration of TDS in the underlying groundwater is generally below 1,000 ppm.

Estimated groundwater level impacts are summarized in Table L-M&I-97, which shows the estimated groundwater level change for the period from 2001–2051 as well as the groundwater level impacts or the difference between the change in groundwater levels for each alternative relative to the change for the No Action Alternative. As shown in Table L-M&I-97, groundwater conditions were estimated in the analysis for both the northern and southern part of the City of Scottsdale (values for the northern part are presented first).

Under the No Action Alternative, groundwater levels would rise about 64 feet in the southern part of Scottsdale and decline about 147 feet in the northern part. The decline in the northern part reflects the increased demands in that area and the heavy reliance on groundwater to meet these demands, as these demands are largely outside the SRP service area. In the southern part of Scottsdale, groundwater pumping is offset in part by both CAP and SRP water. Groundwater levels in the southern part of Scottsdale would also be influenced by recharge in GRUSP located to the east of Scottsdale. Those factors result in a rise in groundwater levels. Substantial changes in groundwater quality would not be anticipated. However, there would be the potential for subsidence in the northern part of Scottsdale due to the lower groundwater levels.

Under the Settlement Alternative and all Non-Settlement Alternatives, groundwater levels would decline in the northern portion of Scottsdale and rise in the southern portion. In the northern Scottsdale area, the declines are almost the same as for the No Action Alternative (ranging from one foot deeper to six feet higher in year 2051). Larger differences from the No Action Alternative occur in the southern Scottsdale area, where groundwater levels in 2051 would be from eight to 48 feet deeper than under the No Action Alternative. These differences reflect the differing availability of CAP water to the City of Scottsdale and the influence of changes in groundwater levels in adjacent areas that are influenced by recharge at GRUSP.

Substantial changes in groundwater quality would not be anticipated for any of the alternatives. There would be the potential for subsidence under all alternatives in the northern part of Scottsdale.

Table L-M&I-97 CAP Allocation Draft EIS City of Scottsdale –Groundwater Data Table		
Alternatives	Estimated Groundwater Level Change from 2001-2051 (in Feet)	Groundwater Level Impact** (in Feet)
No Action	-147/64	--
Settlement Alternative	-141/43	6/-21
Non-Settlement Alternative 1	-145/45	2/-18
Non-Settlement Alternative 2	-147/56	0/-8
Non-Settlement Alternative 3A	-148/35	-1/-28
Non-Settlement Alternative 3B	-147/16	0/-48
*Values correspond to the Scottsdale North and Scottsdale South sub-areas, respectively, as discussed in Appendix I. ** Computed by subtracting the estimated groundwater decline from 2001 to 2051 for the No Action Alternative from the estimated change in groundwater level for the same period for the alternative under consideration. The estimated impact is considered to be more accurate than the estimated decline in groundwater levels.		

5. Socioeconomic

The same population growth is supported under all alternatives, including the No Action Alternative. However, the cost of providing water may vary by alternative. Costs were estimated, on a per af basis, for providing the proposed allocations and, in their absence, alternative water supplies. The alternative water supplies include joining the CAGR and treating and reusing effluent. The difference in cost for this small increment of the City of Scottsdale's total water supply is considered insignificant. It should be noted that the increment of demand met by the proposed CAP allocation is approximately three percent of the total year 2051 demand for the City of Scottsdale.

Table L-M&I-98 CAP Allocation Draft EIS City of Scottsdale –Cost of Potable Water for Additional Allocation Increment		
Alternative	Cost of Water (\$ per af)	Water Source
Settlement Alternative	154 ^{a,b}	CAP Allocation
No Action	237 ^a	Reclaimed Water
Non-Settlement Alternative 1	154 ^a	CAP Allocation
Non-Settlement Alternative 2	237 ^a	Reclaimed Water
Non-Settlement Alternative 3A	237 ^a	Reclaimed Water
Non-Settlement Alternative 3B	154 ^a	CAP Allocation
Notes: a. Estimated average unit cost in year 2000 dollars. b. Estimated range of unit costs in year 2000 dollars. Range is due to estimated change in groundwater pumping lifts during study period.		